

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

Claims 1 and 2 (canceled).

3. (currently amended) A packet transfer apparatus connected between a communication network and a plurality of base stations each of which conducts communications with a plurality of mobile stations via radio channels, for transferring packets received from said communication network to one of said base stations accommodating a plurality of destination mobile stations of the received packets, comprising:

storing means for storing packets received from said communication network correlating the packets with each of the destination mobile stations;

receiving means for receiving a control message from each of said base stations periodically, the control message including transfer rate information of packet transmission between the base station and each of mobile stations under control of the base station; and

control means for reading out packets destined for specific mobile stations from said storing means in accordance with the contents of the control message received by said receiving means and transmitting the packets to the base station to which the specific mobile stations are connected;~~The packet transfer apparatus according to claim 1, wherein said receiving means comprises:~~

a transmission and reception control unit connected to said base station; and

a base station session management unit for extracting said transfer rate information of each mobile station from said control message received by said receiving means.

4. . (currently amended)A packet transfer apparatus connected between a communication network and a plurality of base stations each of which conducts communications with a plurality of mobile stations via radio channels, for transferring packets received from said communication network to one of said base stations accommodating a plurality of destination mobile stations of the received packets, comprising:

storing means for storing packets received from said communication network correlating the packets with each of the destination mobile stations;

receiving means for receiving a control message from each of said base stations periodically, the control message including transfer rate information of packet transmission between the base station and each of mobile stations under control of the base station; and

control means for reading out packets destined for specific mobile stations from said storing means in accordance with the contents of the control message received by said receiving means and transmitting the packets to the base station to which the specific mobile stations are connected~~The packet transfer apparatus according to claim 1,~~

wherein said control means has a base station session management unit for reading out packets destined for a specific mobile station indicated by said control message from said storing means and transmitting the packets to

the base station to which the specific mobile station is connected at a transfer rate designated by said control message.

Claims 5-7 (canceled).

8. (currently amended) A wireless communication system comprising a plurality of base stations each for performing communication with a plurality of mobile stations in their control areas via radio channels, and a packet transfer apparatus connected between said plurality of base stations and a communication network,

wherein each of said base stations has means for receiving from each of mobile stations in the control area a notification of a transmission rate calculated based on a signal received from the base station, and means for periodically generating a control message for designating a packet transfer rate for each mobile station, and transmitting the control message to said packet transfer apparatus, and

said packet transfer apparatus has means for storing packets received from said communication network for each destination mobile station, and selectively transferring the packets to each of said base stations at a packet transfer rate peculiar to the destination mobile station designated by the control message~~The wireless communication system according to claim 7,~~

wherein each of said base stations has means for transmitting a notification message to said packet transfer apparatus when handover of a mobile station occurs from one of neighboring base stations to the base

station, the message indicating that said mobile station has moved in the control area of the base station, and

said packet transfer apparatus has means for interrupting transfer of packets destined for said mobile station to said neighboring base station in response to said notification message, and starting transfer of the packet destined for the mobile station to the base station to which the mobile station is handed over when a control message for designating a packet transfer rate is received from the base station.

9. (previously presented) A packet transfer apparatus connected between a communication network and a plurality of base stations each of which conducts communication with a plurality of mobile stations via radio channels, for transferring packets destined for specific mobile stations received from said communication network to a base station accommodating said specific mobile stations, comprising:

means for grouping a plurality of mobile stations under control of said base stations into a plurality of rate classes for each base station in accordance with transmission rates of the radio channels of said mobile stations;

storing means for storing packets received from said communication network into buffer areas correlated to said rate classes, in accordance with the rate class of the destination mobile station of each of the received packets;

receiving means for receiving, from each of said base stations, control messages each generated periodically according to the rate of packet transfer

between the base station and mobile stations belonging to one of said rate classes under control of the base station, each of said control message indicating a window size in association with each of rate classes; and

control means for reading out packets of a specific rate class from said buffer areas in accordance with the window size indicated in the control message received by said receiving means and transmitting the packets to the base station accommodating the destination mobile station of the packets.

10. (original) A wireless communication system comprising a plurality of base stations for performing communication with a plurality of mobile stations via radio channels, and a packet transfer apparatus connected between said plurality of base stations and a communication network,

wherein each of said base stations comprises:

a buffer memory divided in a plurality of rate class areas according to data transmission rates in a forward link radio channels between mobile stations under control and the base station;

means for generating a control message for instructing a transfer amount of packets from said packet transfer apparatus to the base station at each rate class in accordance with a free space in each of the rate class areas in said buffer memory and transmitting the control message to said packet transfer apparatus;

means for storing a packet received from said packet transfer apparatus into a rate class area corresponding to the destination mobile station of said received packet in said buffer memory; and

means for reading out packets at a rate corresponding to a rate class from each of the rate class areas in said buffer memory and transmitting the packet to the destination mobile station, and

said packet transfer apparatus comprises:

means for grouping packets received from said communication network into rate classes according to data transmission rates of destination mobile stations and buffering the packets; and

means for reading out said buffered packets in accordance with a transfer amount of each rate class indicated by the control message received from each of said base stations and transmitting the packet to the base station corresponding to the destination mobile station of the packet.